



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,514	02/12/2002	John R. Noll	6785-217US	6744
39207	7590	10/21/2005	EXAMINER	
SACCO & ASSOCIATES, PA P.O. BOX 30999 PALM BEACH GARDENS, FL 33420-0999			PEREZ, JULIO R	
			ART UNIT	PAPER NUMBER
			2681	
DATE MAILED: 10/21/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/074,514	NOLL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Julio R. Perez	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

**DETAILED ACTION**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. ✓ Claims 1-4, 8-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Bongfeldt (20020045431).

Regarding claim 1, Bongfeldt discloses a wireless communication system with a plurality of base stations communicating indirectly with a plurality of wireless communications devices through a plurality of repeaters, a method for more efficient use of radio spectrum, comprising: communicating indirectly between a first base station and a wireless communication device using a first repeater and a first RF backhaul link between said first repeater and said first base station (page 3, pars. 0034, 0037-0038; Fig. 1).

However, Bongfeldt fails to specifically disclose a smart antenna on the radio base station as defined by the applicant. Nevertheless, Bongfeldt teaches the antenna is directional and can be a smart antenna in the alternative as is well known in the art (par. 0080-0081).

The advantage of using a smart antenna is the fact that it is possible to transmit a transmission channel in a direction of a particular device, thus maintaining high call quality while maintaining low transmission power and, indeed, reducing interference signals to other proximate devices (see pars. 0080-0081).

Therefore, Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the base station of Bongfeldt such that it accommodates an adaptive array antenna. One would have been motivated to make such a modification as strongly suggested by Bongfeldt (see pars. 0080-0081) in order to maintain high call quality and reducing interference, thereby contributing to an increase in call capacity.

Regarding claims 2 and 9, Bongfeldt discloses, further comprises said first base station communicating with a second wireless communication device using said second repeater and said second RF backhaul link (page 3, pars. 0034, 0037-0038; Fig. 1).

Regarding claims 3 and 10, Bongfeldt discloses, wherein said second repeater communicates with a second base station located in a communication cell separate from said first base station (page 3, pars. 0034, 0037-0038; Fig. 1).

Regarding claims 4 and 11, Bongfeldt disclose further comprising selectively controlling a second smart antenna system of said second base station for improved spectral efficiency by selectively configuring said second smart antenna system to spatially isolate communications on said second RF backhaul link from communications on said first RF backhaul link (pars. 0034, 0037-0038; 0080-0081).

Regarding claim 8, Bongfeldt discloses a wireless communication system with a plurality of base stations communicating indirectly with a plurality of wireless communications devices through a plurality of repeaters, a system for providing more efficient use of radio spectrum, comprising: a first base station configured for communicating indirectly with a wireless communication device using a first repeater and a first RF backhaul link between said first repeater and said first base station (page 3, pars. 0034, 0037-0038; Fig. 1)

However, Bongfeldt fails to specifically disclose a smart antenna on the radio base station as defined by the applicant. Nevertheless, Bongfeldt teaches the antenna is directional and can be a smart antenna in the alternative as is well known in the art (par. 0080-0081).

The advantage of using a smart antenna is the fact that it is possible to transmit a transmission channel in a direction of a particular device, thus maintaining high call quality while maintaining low transmission power and, indeed, reducing interference signals to other proximate devices (see pars. 0080-0081).

Therefore, Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the base station of Bongfeldt such that it accommodates an adaptive array antenna. One would have been motivated to make such a modification as strongly suggested by Bongfeldt (see pars. 0080-0081) in order to maintain high call quality and reducing interference, thereby contributing to an increase in call capacity.

Art Unit: 2681

3. Claims 5-7, 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bongfeldt in view of Dean et al. (5771017).

Regarding claims 5, 12, the method of Bongfeldt as modified above includes all that is recited in claims 1 and 8 except for controlling the selecting from an antenna array at least one antenna element for use by said first base station in producing a directional antenna pattern having a major lobe in the direction of said first repeater. The concept of selecting an element on an array antenna to be pointing in a directional pattern with its main lobe towards a specified device is well known in the art. (See column 5, lines 17-37; col. 8, lines 32-62; Figures 6a-6b, of Dean).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the array antenna mounted on the base station of Bongfeldt so as to include means to produce narrower beam widths as per the teachings of Dean, so that that adaptive array may radiate using selected narrow beams towards specific repeaters.

Regarding claims 6, 13, the combination of Bongfeldt and Dean discloses further comprises selecting a plurality of antenna elements from said antenna array for use by said first base station and adjusting at least one of a phase and amplitude of RF signals received and transmitted by said plurality of antenna elements to produce said directional antenna pattern (Dean, col. 5, lines 25-37; col. 8, lines 32-62).

Regarding claims 7, 14, the combination of Bongfeldt and Dean discloses further comprises selecting a plurality of antenna elements from said antenna array for use by said base station and adjusting at least one of a phase and amplitude of RF signals

Art Unit: 2681

received and transmitted by said plurality of antenna elements to produce a null in said directional antenna pattern, said null selectively directed toward said second repeater (Dean, col.5, lines 25-37; col. 8, lines 32-62; col. 9, lines 1-14).

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio R. Perez whose telephone number is (571) 272-7846. The examiner can normally be reached on 7:00 - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph H. Feild can be reached on (571) 272- 4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2681

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JP

10/14/05



JOSEPH FEILD  
SUPERVISORY PATENT EXAMINER